

## CLAIMS

What is claimed is:

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1. An apparatus comprising:  
one or more processors, the one or more processors configured to perform server  
functions and switch and router functions including load balancing and  
fail-over; and  
a plurality of ports coupled with the one or more processors
- 1 2. The apparatus of claim 1, wherein said server node comprises a single printed  
2 circuit board
- 1 3. The apparatus of claim 1, where the plurality of ports comprises four ports.
- 1 4. The apparatus of claim 2, wherein the printed circuit board is rack mountable and  
2 the plurality of ports are accessible as connection points on the card rack.
- 1 5. A server block comprising:  
2 a plurality of server nodes, each server node comprising a server with integrated  
3 switching, routing, load balancing and fail-over functions and a plurality

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a plurality of signal paths connected with the plurality of ports of the server nodes of the plurality of server nodes, at least two of the plurality of ports of each server node of the plurality of server nodes connected with another server node of the plurality of server nodes in the server block.

1 7. The apparatus of claim 6, wherein the printed circuit board is rack mountable and  
2 the plurality of ports of each server node of the plurality of server nodes are  
3 accessible as connection points on the card rack and the server block is  
4 constructed in one card rack by interconnecting the connection points on the card  
5 rack.

1     8.     The apparatus of claim 7, wherein the external connections of the server block are  
2     provided through an interface card in the card rack, the interface card being  
3     connected to the plurality of server nodes through connection points on the card  
4     rack.

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1 9.

A computer network comprising:

a plurality of server blocks wherein each server block comprises;

a plurality of server nodes, each server node comprising a server with

integrated switching, routing, load balancing and fail-over

functions and a plurality of ports, and

a plurality of signal paths connected with the plurality of ports of each

server node of the plurality of server nodes, at least one signal path

connected with each server node of the plurality of server nodes

providing an external connection to a server block, and at least two

signal paths of the plurality of signal paths connected with each

server node of the plurality of server nodes being connected with

other server nodes of the plurality of server nodes in the block; and

a plurality of signal paths connected with the server blocks, at least one signal

path connected with each server block of the plurality of server blocks

providing an external connection to the network, and at least two signal

paths of the plurality of signal paths connected with each server block of

the plurality of server blocks being connected with other server blocks of

the plurality of server blocks.

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10. The apparatus of claim 9, wherein each server node of the plurality of server nodes comprises one printed circuit board.

11. The apparatus of claim 10, wherein the printed circuit board is rack mountable and the plurality of ports of each server node of the plurality of server nodes are accessible as connection points on the card rack and a server block is constructed in one card rack by interconnecting the connection points on the card rack.

12. The apparatus of claim 11, wherein the external connections of the plurality of server blocks are provided through an interface card in the card rack, the interface card being connected to the plurality server nodes through connection points on the card rack.

13. A method of operating a first server node comprising:  
receiving a request;  
determining whether to service the request;  
if unable to service the request, routing the request to a second server node coupled with the first server node.

14. The method of claim 13, wherein determining whether the first server node can service the request is based on the present load of the first server node.



1 19. The machine-readable medium of claim 17, wherein routing further includes load  
2 balancing.

20. The machine-readable medium of claim 19, wherein load balancing further comprises:

determining the present load of one or more other server nodes coupled with the first server node; and

routing the message to the server node of the one or more server nodes with the lightest load.

**Q**uestions **A**nswers